Data Transfer Examples

This section does not describe the functionality and parameters of the functions Unload and Load. This information is given in the sections Unload and Load. Instead, this section tells you how to proceed step by step and indicates some special considerations or restrictions that apply to the individual steps.

The examples given here are for the Migrate Load and Unload functions, but the information given applies in most cases equally to ALF Import and Export functions. Any differences in behavior are described as required.

This section covers the following topics:

- Unload
- Load
- Consolidating Internal IDs in Batch Mode

Unload

This section first describes the unload procedure in general and then gives two detailed examples: one unload operation performed online and one in batch mode.

Step 1 - Create Extract

Create one or more extracts which contain the objects to be unloaded. Before starting the unload operation, please consider the following points:

- It is not possible to select fields to be included in an extract. All fields of a file contained in an extract are exported automatically.
- If you select userviews, you must also select the related master files if they do not exist in the target environment.
- With IMS files and databases, you must always select the entire IMS structure.
- All objects that are referenced by objects contained in an extract but are not contained in the extract are stored in the target environment as placeholder objects.
- If Predict Security is active, you must have at least READ access to objects you wish to export.
- Metadata, retrieval models and XRef data cannot be included in an extract. You can specify them directly with the Unload function.
- After an extract has been created online, you have the option to select the objects in batch mode using the command BUILD.

Step 2 - Execute the Unload Function

Execute the Unload function under consideration of the following points:

- You have to decide whether the Internal ID of objects is to be used. If not, set the parameter with internal ID to N.
  The concept of the Internal ID and examples of unload operations with or without Internal ID are given in the section Internal ID.
- If you wish to unload metadata and objects, you are recommended to perform this unload operation in two steps. First, unload the metadata, and then unload the objects to another transfer medium. This saves time when you load the data at a later time.

After the Unload function has been executed, the source FDIC file contains a protocol in an object of type report listing.

Example of an Online Unload Operation

In this example, all objects of an FDIC file are unloaded.

1. **Call Predict**
   Call Predict with the commands LOGON SYSDIC and MENU.
2. **Create an extract**
   Create an extract with the command ADD ET ALL-OBJECTS.
3. **Select all objects**
   Select all objects with the command BUILD ET ALL-OBJECTS. Do not specify an object type in the screen below.

```
   13:57:37              *****  P R E D I C T  4.2.2   *****           2002-07-31
   Plan  14                  - Build/extend an Extract -            Profile BOE

   Extract ID ......... ALL-OBJECTS
                                                       Added 2002-07-31 at 13:57
                                                          by WRKPR1
   Build extract for object type ..*
```

In the next screen, specify the parameters as follows:

```
   13:01:29              *****  P R E D I C T  4.2.2   *****           2002-07-31
   Plan  14                  - Build/extend an Extract -            Profile BOE

   Extract ID ......... ALL-OBJECTS
                                                       Added 2002-07-31 at 13:57
                                                          by WRKPR1
   Build extract for object type ..*      ( All objects )

   Retrieval type .....* D
   Output-mode ........* L List

   Search criteria
     Object ID .........




   Drop existing objects N (Y,N)
   List objects ........ N (Y,N)

   Restrictions .......* E empty
   Output options .....* D Profile Default
```

The following window appears:

```
   +--------- Status of Processing --------+
   !                                       !
   ! Current time ............... 13:01:31 !
   ! No. of objects processed ... 99       !
   ! Resulting no. of objects ... 0        !
   !                                       !
   ! Continue processing .......*          !
   +---------------------------------------+
```

Enter U in the field Continue processing.

4. **Unload the objects**
   Enter the command SYSDICBE to change to the Coordinator. The following parameters are specified in the Coordinator Main Menu:
   - Set Function to U.
   - Set Transfer medium type to 1. This is the default setting which is used in this example.
   - Set To FDIC DBnr to 46 and To FDIC Fnr to 13. (Default setting is the current FDIC file.)

5. **Specify additional parameters**
   In the next screen, specify the parameters as follows:

```
   13:42:18              *****  P R E D I C T  4.2.2  *****           2002-07-31
                          - Unload Extracts -


     Extract ID *                  No.    Extract ID *                      No.
   1 ALL-OBJECTS                     6
   2                                 7
   3                                 8
   4                                 9
   5                                10


   Unload options                          Build set for unloading          No.
     With code ..............* N             Metadata ................ N (Y/N)
     With profile ........... N (Y/N)        Retrieval models ........ N (Y/N)
     With internal ID ....... Y (Y/N)        XRef data ............... N (Y/N)
     Include Extracts ........ N (Y/N)
     Target environment .....* 42
     Create Report listing ... Y (Y/N)


   Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        -     -    Stop   -     -    Flip  Print  -     -     -     -     -
```

6. **Unload successfully terminated**
   The source FDIC file contains a protocol in an object of type report listing. The ID of this object is consists of your user ID, the function code UNL and a timestamp. This protocol lists the objects that have been unloaded.

Example of an Unload Operation in Batch Mode

In this example, all objects of an FDIC file are unloaded.

1. **Call Predict (online)**
   Call Predict with the commands LOGON SYSDIC and MENU.
2. **Create an extract (online)**
   Create an Extract with the command ADD ET ALL-OBJECTS.
3. **Start the unload process**
   Start the batch job with the following commands:

```
   LOGON SYSDIC
   MENU
   BUILD EXTRACT ALL-OBJECTS LIST ALL              (select all objects)
   SYSDICBE                                        (change to Coordinator)
   SET MEDIUM-TYPE=5 FDIC-DBNR=46 FDIC-FNR=13      (optional)
   UNLOAD EXTRACT EXTRACT1=ALL-OBJECTS CODE=Y PROFILE=Y
   FIN
```

4. **Unload successfully terminated**
   The source FDIC file contains a protocol in an object of type report listing.

Load

This section first describes the load procedure in general and then gives two detailed examples: one performed online and one performed in batch mode.

Before You Begin

Check whether an FDIC file has been defined as the Coordinator FDIC with parameters Coordinator FDIC DBnr/Fnr under Defaults > Coordinator Defaults. If this is not the case, define the Coordinator FDIC by specifying these parameters.

General Information

To start a load operation, you do not necessarily have to use the function Load, which first performs various checks and then transfers the data to the Main FDIC. You can instead execute the function Test. This command performs the same checks as the function Load but does not transfer the data.

If another load operation is in process when you start a load, the Coordinator FDIC is locked. If the Coordinator FDIC is locked by your own user ID, i.e. the load operation was started by you, you can unlock and clear the Coordinator FDIC with the command CLEAR.

If the Coordinator FDIC is locked by a load operation started by another user, you may have to contact this user and/or wait until the load is completed. If this load was interrupted, it may be necessary to clear the Coordinator FDIC. This can be done by your DB Administrator with the command SPECIAL REFRESH. See Refresh Coordinator FDIC in the section **Special Functions** in the **Predict Administration documentation**.

> **Note:**
> With both commands CLEAR and SPECIAL REFRESH, all the data on the Coordinator FDIC is deleted.

Overview of Load Phases

The following table shows the actions which are performed by the Coordinator, and the functions/commands you can use to execute the various actions. Each action is described below. See also section Coordinator Check Cycle in this documentation.

		Coordinator Check Cycle			
	Transfer to Coord. FDIC	**Conflict Management**	**Security**	**Consistency Check**	**Transfer to Main FDIC**
LOAD	--------->	--------->	--------->	--------->	----------
TEST	--------->	--------->	--------->	----------	
CONTINUE		--------->	--------->	--------->	----------
CHECK		--------->	--------->	----------	
Report Listing stored in	Coordinator FDIC	Coordinator FDIC	Coordinator FDIC	Coordinator FDIC	Main FDIC

- **Transfer to Coordinator FDIC**
  The syntax of the ALF/Migrate file to be transferred is checked. If no error is detected, the data is transferred to the Coordinator FDIC.
  If the ALF/Migrate file was created by you and an error occurred, you must correct the file and reexecute the

operation.

- **Conflict Management - First Phase of the Coordinator Check Cycle**
  The Coordinator checks whether there are conflicts resulting from Internal IDs. In case of a conflict, the operation is cancelled.
  After you solved the conflicts, continue by executing the command
  - CHECK if the data is to be checked only and not to be transferred, or
  - CONTINUE if the data is to be checked and transferred.
- **Security - Second Phase of the Coordinator Check Cycle**
  The Coordinator checks whether you have the appropriate access rights to load the data. If there are objects for which you do not have the required access rights, the operation is cancelled.
  After you have either obtained the necessary access rights or deleted the corresponding objects on the Coordinator FDIC, continue by executing the command
  - CHECK if the data is to be checked only and not to be transferred, or
  - CONTINUE if the data is to be checked and transferred.
- **Consistency Check - Third Phase of the Coordinator Check Cycle**
  The data is checked for logical consistency (for example, uniqueness of file number with file objects). If inconsistencies are detected, the operation is cancelled.
  After resolving the consistency conflicts on the Coordinator FDIC, continue by executing the command
  - CHECK if the data is to be checked only and not to be transferred, or
  - CONTINUE if the data is to be checked and transferred.
- **Transfer to Main FDIC**
  All objects are transferred from the Coordinator FDIC to the Main FDIC. Then the contents of the Coordinator FDIC are deleted.
  After successful execution of the load operation, the report listing containing the protocol can be found on the Main FDIC. It contains the list of the objects loaded.
  If the Coordinator cancelled the load because of errors, the report listing can be found on the Coordinator FDIC.

Example of an Online Load Operation

In this example, the workfile used contains two objects: the program PROG-1 and the system SY-1. The program PROG-1 is to be imported.

1. **Call the Predict Coordinator**
   ```
   LOGON SYSDICBE
   MENU
   ```
2. **Specify the load parameters**
   The following parameters are specified in the Coordinator Main Menu:
   - Set Function to L.
   - Set Transfer medium type to 1. This is the default setting which is used in this example.
   - Set To FDIC DBnr to 46 and To FDIC Fnr to 13. (Default setting is the current FDIC file.)
   - Set Object type to PR. All objects of this type are loaded.
3. **Coordinator FDIC is locked by another import**
   Another import is running and locks the Coordinator FDIC. A window appears which contains information about the import in process:

```
   13:19:43              *****  P R E D I C T  4.2.2   *****           2002-07-31
                                - Coordinator -
   Migrate Function                      ALF Function
     +----------------------------------------------------------------------+
   U !                                                                      !
   L !                       Coordinator FDIC locked                        !
   T !                       ----------------------------------             !
   D !                                                                      !
   B ! Attention: User PRDUNDA  TID LOADDOC  for main FDIC 46  , 13         !
     !            has given command                                         !
   F !            Load All objects                                          !
     !            on 2002-07-31 at 13:59:11                                 !
   T !                                                                      !
     ! Status: Transfer main FDIC started at 13:13:06                       !
     !                                                                      !
     !                                                                      !
     +----------------------------------------------------------------------+
     Cipher ..........            Cipher ....            Cipher ....
     Identification ..*


   Command ===>
   Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12--
          -     -    Stop   -     -    Flip  Print  -     -     -     -     -
```

If the current load operation was started by you, you can clear the Coordinator FDIC with the command CLEAR 46 13. Otherwise, you must wait until the current load operation is terminated.
Start the load operation again as described under point 2, **Specify the load parameters**.

4. **Specify additional load parameters**
   In the following screen, additional load parameters are specified. In this example, only new objects of type program are to be imported:
   - Set Replace to N. This is the default setting.
   - Start the load by pressing ENTER.

```
   13:38:19              *****  P R E D I C T  4.2.2   *****           2002-07-31
                              - Load (PR) Program -

    Program ID ...................

    Load options
      Program of type ............*
      From date .................. 0000-00-00 00:00 (YYYY-MM-DD HH:II)
      Prefix .....................
      Suffix .....................
      Create Report listing ....... Y (Y/N)


      Replace ................... N (Y/N)
```

5. **Conflict resulting from Internal ID**
   The following window appears:

```
+---------------- Attention ---------------------+
!                                                !
! Function not successfully terminated.          !
!                                                !
!      Error during CONFLICT MANAGEMENT          !
!                                                !
! ENTER 'Y'  to go to                            !
!            Coordinator FDIC (180,62)           !
!            of Main FDIC     ( 46,13)    ... Y   !
!                                                !
! Enter any other value to go to Coordinator Menu !
+------------------------------------------------+
```

Enter Y to change to the Coordinator FDIC.

6. **Display the report listing**
Enter the command DISPLAY RT #SAG-ERROR to display the report listing which contains the list of errors.
The report listing provides the following information:

```
         CHECKING OBJECTTYPE: PR , OBJECT-ID: PROG-1
  DIC1635 OBJECT WITH THIS OBJECT ID, BUT DIFF. INTERNAL ID EXISTS.
  DIC1628 CHECKED WITH ERRORS PR PROG-1.
```

7. **Resolve the conflict**
   - Rename object PROG-1 to PROG-2.
   - Enter the command SYSDICBE to return to the Coordinator.
   - Enter the command CONTINUE to continue the import that was interrupted.

8. **Error in Check Consistency phase**
The following window appears:

```
+---------------- Attention ---------------------+
!                                                !
! Function not successfully terminated.          !
!                                                !
!      Error during CHECK CONSISTENCY            !
!                                                !
! ENTER 'Y'  to go to                            !
!            Coordinator FDIC (180,62)           !
!            of Main FDIC     ( 46,13)    ... Y   !
!                                                !
! Enter any other value to go to Coordinator Menu !
+------------------------------------------------+
```

Enter Y to change to the Coordinator FDIC.

9. **Display the report listing:**
Enter the command DISPLAY RT #SAG-ERROR to display the report listing which contains the list of errors.
The Report Listing provides the following information:

```
         CHECKING OBJECTTYPE: PR , OBJECT-ID: PROG-1
  DIC2851 MEMBER ALREADY DOCUMENTED IN SYSTEM PROGRAM : PROG-1
          PROGRAM PROG-1 IS ON THE MAIN FDIC.
  DIC1628 CHECKED WITH ERRORS PR PROG-2.
```

10. **Resolve the consistency conflict:**
One way to resolve the conflict is:
   - Enter command BACK to change to Main FDIC (target FDIC).
   - Delete or change the member name in the program PROG-1.

- Enter command SYSDICBE to return to the Coordinator.
- Enter command CONTINUE to continue the load operation.

Another way to resolve the conflict is:

- Delete or change the member name in the program PROG-2.
- Enter command SYSDICBE to return to the Coordinator.
- Enter command CONTINUE to continue the load operation.

11. **Load operation terminated successfully**
- Enter command SYSDIC to change to Main FDIC (target FDIC).
- Select the report listing containing the protocol with the command SELECT RT name. The name of the report listing is built from your user ID followed by the string 'IMP' and a time stamp. See the section Logging Coordinator Functions.
- Display the report listing.

Example of a Load Operation in Batch Mode

In this example, a dataset exists which contains two objects: program PROG-1 and the System SY-1. The program PROG-1 is to be loaded.

1. **Start the load operation**
   In the following job, the dataset containing the object to be loaded must be assigned to workfile 5.

```
LOGON SYSDICBE
MENU
SET MEDIUM-TYPE=5 FDIC-DBNR=46 FDIC-FNR=13              (optional)
LOAD OBJECTTYPE PR REPLACE=N
FIN
```

2. **Coordinator FDIC is locked by another load operation**
   The job is cancelled and provides the following output:

```
+--------------------------------------------------------------------------------+
!                                                                                !
!                          Coordinator FDIC locked                               !
!                       -----------------------------                            !
!                                                                                !
!                                                                                !
!                                                                                !
! Attention: User ULH       TID DAESA048 for main FDIC  46 ,  13                 !
!            has given command                                                   !
!            Import All objects                                                  !
!            on 2002-07-31 at 08:36:02                                           !
!                                                                                !
!                                                                                !
!    Status: Transfer main FDIC started at 10:13:06                              !
+--------------------------------------------------------------------------------+
```

If the load in process was started by you, you can clear the Coordinator FDIC with the command CLEAR 46 13. Otherwise, you must wait until the current load operation is terminated.
Start the job again as described under point 1, **Start the load operation**.

3. **Conflict resulting from Internal ID**
   The job is cancelled and provides the following output:

```
          CHECKING OBJECTTYPE: PR , OBJECT-ID: PROG-1
   DIC1635 OBJECT WITH THIS OBJECT ID, BUT DIFF. INTERNAL ID EXISTS.
   DIC1628 CHECKED WITH ERRORS PR PROG-1.
```

4. **Resolve the conflict online**
   - Call Predict with the commands LOGON SYSDIC and MENU.
   - Enter the command COORDINATOR to change to the Coordinator FDIC.
   - Rename object PROG-1 to PROG-2.
5. **Continue the load operation**
   You do not need to specify a workfile for the job started with the following commands.

```
LOGON SYSDICBE
MENU
SET FDIC-DBNR=46 FDIC-FNR=13              (optional)
CONTINUE
FIN
```

6. **Error in Check Consistency phase**
   The job is cancelled and provides the following output:

```
             CHECKING OBJECTTYPE: PR , OBJECT-ID: PROG-1
DIC2851      MEMBER ALREADY DOCUMENTED IN SYSTEM PROGRAM : PROG-1
             PROGRAM PROG-1 IS ON THE MAIN FDIC.
DIC1628      CHECKED WITH ERRORS PR PROG-2.
```

7. **Resolve the consistency conflict online**
   Call Predict with the commands LOGON SYSDIC and MENU.
   One way to resolve the conflict is:
   - Delete or change the member name in the program PROG-1.
   Another way to resolve the conflict is:
   - Enter the command COORDINATOR to change to the Coordinator FDIC.
   - Delete or change the member name in the program PROG-2.
   Continue the load operation as described under point 5, **Continue the load operation.**
8. **Load terminated successfully**
   The load protocol is provided in the job output and in the Report Listing on the Main FDIC (target FDIC). To display the Report Listing, see point 11 of the online example (Load operation terminated successfully).

Consolidating Internal IDs in Batch Mode

If you are working with more than one FDIC file, we strongly recommend you consolidate the Internal IDs of the objects at your site. In the sample job below, the Internal IDs are exported or unloaded from the source FDIC to Workfile 1 and from there are imported or loaded to the target FDIC.

Import:

```
LOGON SYSDICBE
MENU
SET fnr1 dbnr1 ALF-TYPE=1
EXPINTERNAL
SET fnr2 dbnr2
IMPORT INTERNALID ALL UPDATE=Y
FIN
```

where

dbnr1 and fnr1 represent the file and database number of the source FDIC,

and

`dbnr2` and `fnr2` represent the file and database number of the target FDIC.

Load:

```
LOGON SYSDICBE
MENU
SET fnr1 dbnr1 ALF-TYPE=1
UNLINTERNAL
SET fnr2 dbnr2
LOAD INTERNALID ALL UPDATE=Y
FIN
```

Sample Batch Command for Consolidating Internal IDs

Consolidating Internal IDs is a two-step process:

1. **Export Internal IDs from FDIC to Workfile**
   Enter the following command to export the Internal IDs of all objects on a FDIC file to a workfile.
   Export:

```
LOGON SYSDICBE
MENU
SET dbnr1 fnr1 ALF-TYPE=1
EXPINTERNAL
FIN
```

   where `dbnr1` and `fnr1` represent the database and file number of the FDIC.
   Unload:

```
LOGON SYSDICBE
MENU
SET dbnr1 fnr1 ALF-TYPE=1
UNLINTERNAL
FIN
```

2. **Import Internal IDs to Current FDIC**
   Enter the following command to import the Internal IDs of all objects on the workfile created with the command above.
   Import:

```
LOGON SYSDICBE
MENU
SET dbnr2 fnr2 ALF-TYPE=1
IMPORT INTERNAL-ID ALL UPDATE=Y
FIN
```

   where `dbnr2` and `fnr2` represent the database and file number of the FDIC to be converted.
   Load:

```
LOGON SYSDICBE
MENU
SET dbnr2 fnr2 ALF-TYPE=1
LOAD INTERNAL-ID ALL UPDATE=Y
FIN
```